

first adhesive films that do not foam; and
second adhesive films not containing any carrier, wherein
the foam plastic core members are bonded together on first sides of the foam
plastic core members facing each other with the first adhesive films, and
the surface plates are bonded to the core on second sides of the foam plastic
core members facing the surface plates with either the second adhesive films or the composite
resin.

REMARKS

Claims 1-11 are pending, and claims 2-11 are withdrawn from consideration.

Rejoinder of claims 1-11 is respectfully requested. By this Amendment, claim 1 is amended.

No new matter is added by any of these amendments.

Reconsideration based on the following remarks is respectfully requested.

The attached Appendix includes a marked-up copy of the rewritten claim (37 CFR §1.121(c)(1)(ii)).

I. Amendment Entry after Final Rejection

Entry of this amendment is proper under 37 CFR §1.116 because the amendments: a) place the application in condition for allowance (for all the reasons discussed herein); b) do not raise any new issues requiring further search or consideration; c) place the application in better condition for appeal (if necessary); and d) address formal requirements of the Final Rejection and preceding Office Action.

The foregoing amendments do not raise any new issues after Final Rejection. Therefore, entry of the amendments is proper under 37 CFR §1.116 because the amendments place the application in condition for allowance. Accordingly, Applicants respectfully request entry of this Amendment.

II. Claim 1 Satisfies the Requirements under 35 U.S.C. §112, second paragraph

The Final Office Action rejects claim 1 under 35 U.S.C. §112, second paragraph, as being indefinite. Claim 1 has been amended to obviate this rejection. Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

III. Claim 1 Defines Patentable Subject Matter

The Final Office Action rejects claim 1 under 35 U.S.C. §103(a) over U.S. Patent 5,916,469 to Scoles et al. (Scoles) either individually or in view of U.S. Patent 5,481,091 to Grimm et al. (Grimm). This rejection is respectfully traversed.

As recited in Applicants' claim 1, the bonding between the foam plastic core members and the bonding between the surface plates and the foam plastic core members are distinguished by the amendment.

Neither Scoles nor Grimm teaches or suggests a sandwich structure including, *inter alia*, first adhesive films that do not foam, second adhesive films not containing any carrier, foam plastic core members bonded together on first sides of the foam plastic core members facing each other with the first adhesive films, and surface plates bonded to a core on second sides of the foam plastic core members facing the surface plates with either the second adhesive films or a composite resin, as recited in claim 1. The bonding between the foam plastic core members and the bonding between the surface plates and the foam plastic core members are performed separately with distinguishable adhesive films.

In particular, the foam plastic core members are bonded together with first adhesive films that do not foam, and the surface plates are bonded to the core with second adhesive films not containing any carrier or the component resin of the fiber-reinforced composite material forming the surface plates. These features enables prevention of water invasion into the bonding portions of the sandwich structure. Support for this embodiment is found on page 3, lines 24-35 of the specification.

By contrast, Scoles and Grimm fail to provide for Applicants' claimed features. Instead, Scoles discloses a foam core used for holding a Z-pin. The foam core of Scoles is not as a structural member, and thus does not render obvious the features' of Applicants claims. See col. 20, lines 7-17 and Fig. 7 of Scoles.

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Additionally, Grimm does not compensate for the deficiencies of Scoles outlined above for claim 1, but rather discloses welding of thermoplastic material by alternating and overlapping pairs. See col. 3, lines 13-20 of Grimm. Thus, Grimm has no relation to a sandwich structure or its repair.

Further, there is no motivation to combine features related to thermoplastic composite Z-pinning of Scoles with thermoplastic welding of Grimm, nor has the Office Action established sufficient motivation or a *prima facie* case of obviousness.

For at least these reasons, Applicants respectfully assert that claim 1 is now patentable over the applied references and consequently is in condition for allowance. Thus, Applicants respectfully request that the rejections under 35 U.S.C. §103 be withdrawn.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Gerhard W. Thielman
Registration No. 43,186

JAO:GWT/gwt

Attachment:
Appendix

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461
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APPENDIX

Changes to Claims:

The following is a marked-up version of the amended claim:

1. (Twice Amended) A sandwich structure comprising:

a core having foam plastic core members formed of a closed-cell foam plastic material, ~~wherein the closed-cell foam plastic material having a plastic material and foams within the plastic material, each of the foams within the plastic material being distributed independently each other from other foam; and~~

surface plates formed of a fiber-reinforced composite material covering the opposite surfaces of the core, said fiber-reinforcing composite material having a component resin and hydrophobic inorganic fibers as reinforcing fibers contained within the component resin;

first adhesive films that do not foam; and

second adhesive films not containing any carrier, wherein

the foam plastic core members are bonded together on first sides of the foam plastic core members facing each other with the first adhesive films that do not foam, and

the surface plates are bonded to the core on second sides of the foam plastic core members facing the surface plates with either the second adhesive films not containing any carrier or the composite resin of the fiber-reinforced composite material forming the surface plates.